

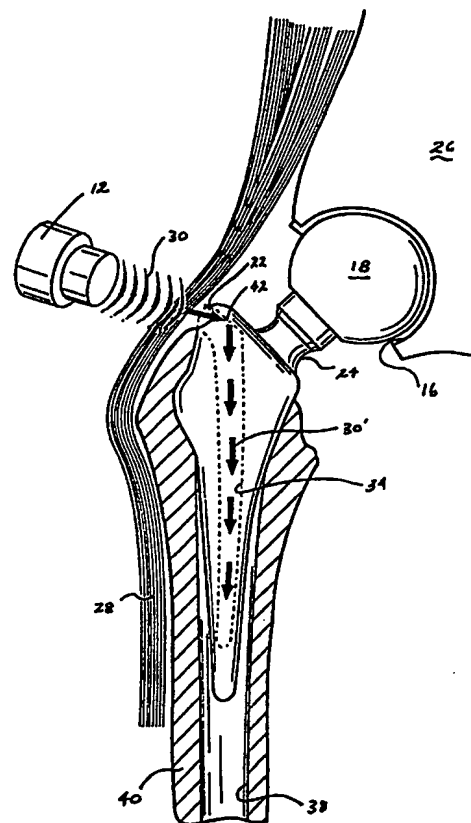
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: PROSTHESIS AND METHODS OF INDUCING BONY INGROWTH USING ULTRASOUND THERAPY

## (57) Abstract

A bone prosthesis includes a first portion for engaging a first bone segment and at least one channel disposed within the first portion for propagating acoustic energy through the channel to the first bone segment. The channel includes an interior reflective surface which defines a resonating chamber disposed through the first portion which propagates acoustic energy to the first bone segment to stimulate bony ingrowth. The present disclosure also relates to a method for measuring the stability of an implanted prosthesis which includes the steps of: a) providing a source having a probe for sending and receiving signals and a comparator for comparing and analyzing prior signal data with newer signal data; b) placing the probe adjacent the prosthesis; c) transmitting an initial signal through the probe to the prosthesis; d) receiving a return signal from the probe after the signal propagates and returns through the prosthesis; e) storing the return signal data; f) repeating steps (a) through (e); and g) comparing and analyzing stored return signal data to determine implant stabilization.



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